WBS: 33879.2.41

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" ROADWAY DESIGN UNIT – N.C. DEPARTMENT OF TRANSPORTATION – RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1700.01	ELECTRICAL SERVICE OPTIONS
1715.01	UNDERGROUND CONDUIT
1716.01	JUNCTION BOXES
1725.01	INDUCTIVE DETECTIVE LOOPS
1740.01	METAL POLES
1742.01	METAL POLE FOUNDATIONS
1751.01	CONTROLLERS AND CABINETS – ELECTRICAL SERVICE GROUNDING
1751.02	CONTROLLERS AND CABINETS – ELECTRICAL SERVICE DETAILS
1752.01	CONTROLLERS AND CABINETS – POWER, GROUND AND AUXILIARY POWER SYSTEMS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

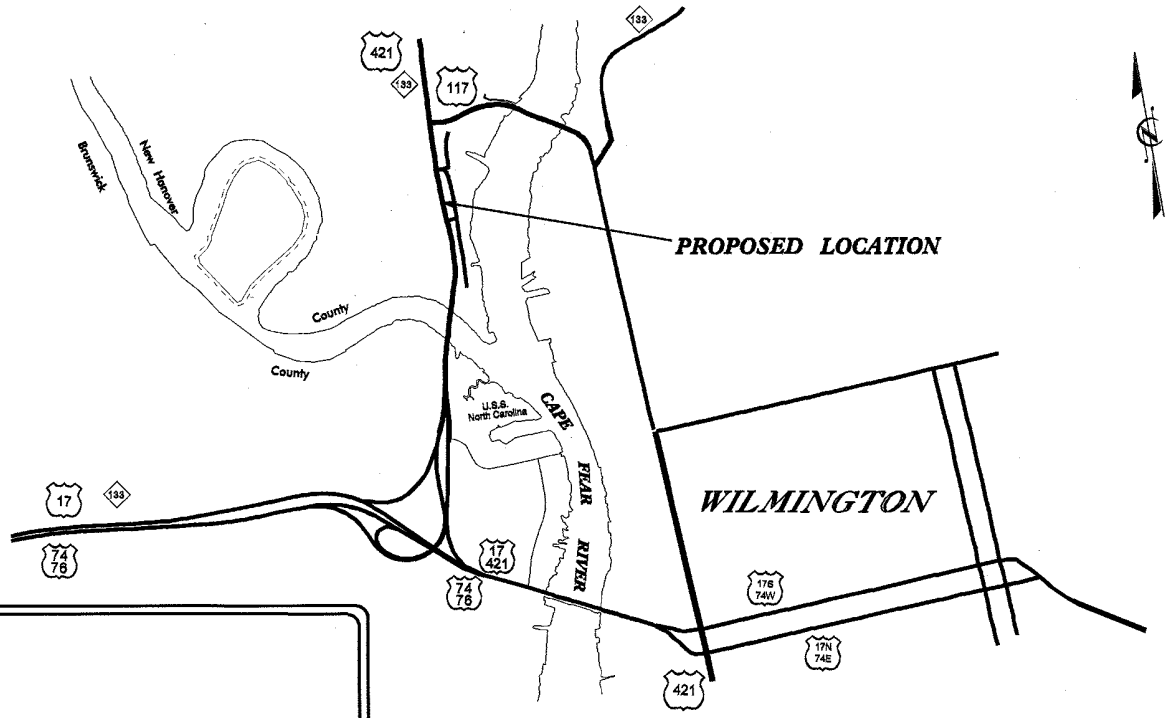
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	33879.2.41	ITS-1

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

PLANS FOR PROPOSED

US 421/NC 133 VIRTUAL WEIGH STATION

THIS PROJECT CONSISTS OF FURNISHING AND INSTALLING EQUIPMENT AND MATERIALS FOR INSTALLATION OF THE NEW WEIGH IN MOTION SYSTEM NEAR WILMINGTON, NORTH CAROLINA. RELATED MATERIALS CONSIST OF LOCAL CABINETS AND CONTROLLERS, WEIGH IN MOTION STATION, AND FREEZE-FRAME CAMERA ASSEMBLY.



INDEX OF PLANS

NCDOT CONTACTS:
TRANSPORTATION MOBILITY AND SAFETY

G.A. FULLER, P.E.
STATE ITS & SIGNALS ENGINEER

Prepared in the Office of Mobility and Safety
750 N. Greenfield Pkwy., Garner, NC 27529

ENGLISH

ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023919 GREGORY A. FULLER

Gregory A. Fuller 7/15/14

PROJECT REFERENCE NO.	SHEET NO.
33876.2.41	ITS-2

LEGEND

PROPOSED		EXISTING
▬▬▬	TRENCHED CONDUIT	N/A
○	CAMERA POLE	N/A
□	JUNCTION BOX	N/A
▢	STANDARD INDUCTIVE LOOP DETECTOR	N/A
▷▭	CAMERA ASSEMBLY	N/A
⊠	EQUIPMENT CABINET	N/A
▬▬	PIEZOELECTRIC QUARTZ SENSOR	N/A
×	DRILL THROUGH SHOULDER FOR CONDUIT	N/A

GENERAL NOTES

1. OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO INSTALLATION FOR ITEMS TO BE INSTALLED AS PART OF THIS PROJECT.
2. BURIED UTILITIES AND STRUCTURES: PIPELINES, STORM SEWERS, POWER CABLES, UTILITY CABLES, AND OTHER PUBLICLY AND PRIVATELY OWNED UNDERGROUND OBSTRUCTIONS MAY EXIST ADJACENT TO AND WITHIN THE ROADWAY RIGHT-OF-WAY WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT. INVESTIGATE THE LOCATION OF SUCH BURIED UTILITIES AND STRUCTURES WITH PUBLIC AND PRIVATE UTILITIES.
3. IT IS THE CONTACTOR'S RESPONSIBILITY TO COORDINATE WITH THE OWNER OF ALL AFFECTED UTILITIES FOR WORK THAT MAY IMPACT ANY UTILITY FACILITY.
4. ALL WORK SHOWN ON THESE PLANS IS TO BE PERFORMED BY THE CONTRACTOR UNLESS IT IS SPECIFICALLY NOTED THAT THE WORK WILL BE PERFORMED BY OTHERS.

ABBREVIATIONS

HDPE	HIGH DENSITY POLYETHYLENE
L	LOOP DETECTOR
N.T.S.	NOT TO SCALE
WIM	WEIGH IN MOTION
PQS	PIEZOELECTRIC QUARTZ SENSOR
S	SENSOR
NCSHP	NORTH CAROLINA STATE HIGHWAY PATROL

Prepared in the Office of: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, 750 N. Greenfield Pkwy., Garner, NC. 27529

SCALE: 0 — N/A

LEGEND, GENERAL NOTES AND ABBREVIATIONS

DIVISION 08 NEW HANOVER CO. WILMINGTON

PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YOW
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. G. PARKER

REVISIONS	INIT.	DATE

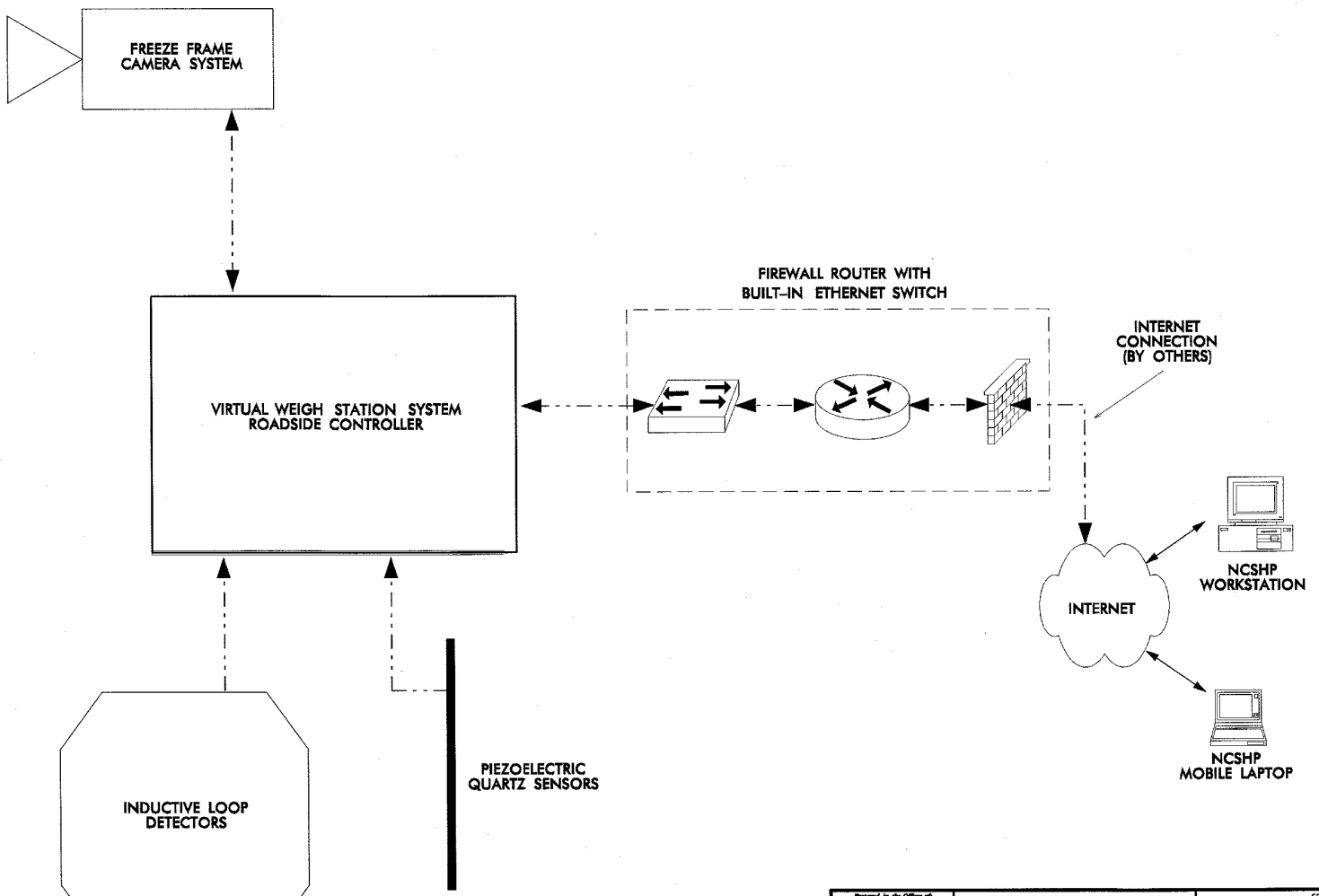
CADD FILENAME:

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023919 GREGORY A. FULLER

SIGNATURE: Gregory A. Fuller DATE: 7/15/10

PROJECT REFERENCE NO.	SHEET NO.
33879.2.41	ITS-3



Prepared in the Offices of:

SYSTEM
BLOCK DIAGRAM

DIVISION 08 NEW HANOVER CO. WILMINGTON

PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YON
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. B. PARKER

REVISIONS	INIT.	DATE

SCALE
0
N/A

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023919 ENGINEER
SIGNATURE
DATE
CADD Filename:

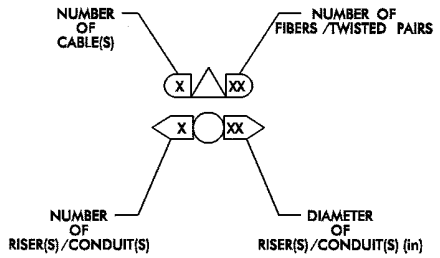
PROJECT REFERENCE NO.	SHEET NO.
8867B.2.41	17B-4

1. INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
2. INSTALL REA, PE – 38, (FIGURE – 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
3. INSTALL REA, PE – 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
3A. INSTALL THREE #14 CONDUCTOR FEEDER CONDUCTORS
3B. INSTALL AVI CABLE(S) *
3C. INSTALL OVERHEIGHT DETECTOR CABLE(S) *
3D. INSTALL PIEZOELECTRIC QUARTZ SENSOR CABLES *
3E. INSTALL LOOP WIRE
3F. INSTALL LEAD-IN CABLE
3G. INSTALL CCTV VIDEO AND POWER CABLES *
3H. INSTALL TWO 2/0 AWG COPPER FEEDER CONDUCTORS AND ONE #8 EQUIPMENT GROUNDING CONDUCTOR
4. INSTALL SMFO CABLE
5. INSTALL MMFO CABLE
6. INSTALL FIBER OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH
8A. SAW CUT PAVEMENT
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
13. INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
14. INSTALL POLYETHYLENE CONDUIT
15. DIRECTIONAL DRILL CONDUIT
16. BORE AND JACK CONDUIT
17. INSTALL CABLE(S) IN EXISTING CONDUIT
18. INSTALL CABLE(S) IN NEW CONDUIT
19. INSTALL CABLE(S) IN EXISTING RISER
20. INSTALL CABLE(S) IN NEW RISER
21. INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS
21A. INSTALL CABLE(S) IN NEW CONDUIT STUBOUTS
22. INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
23. INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
24. INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
25. INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
26. TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
27. INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
28. INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29. INSTALL UNDERGROUND SPLICE ENCLOSURE
30. INSTALL AERIAL SPLICE ENCLOSURE
31. INSTALL POLE MOUNTED CABINET
32. INSTALL BASE MOUNTED CABINET WITH EXTENDER
33. REMOVE EXISTING SPLICE CABINET
34. INSTALL CABINET FOUNDATION
35. REMOVE EXISTING CABINET FOUNDATION
36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV CAMERA WOOD POLE
38. INSTALL CAMERA METAL POLE AND FOUNDATION
39. INSTALL JUNCTION BOX
40. INSTALL OVERSIZED JUNCTION BOX
41. REMOVE EXISTING JUNCTION BOX
42. INSTALL WOOD POLE
43. REMOVE EXISTING WOOD POLE
44. INSTALL AERIAL GUY ASSEMBLY
45. INSTALL STANDARD GUY ASSEMBLY
46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL TELEPHONE SERVICE
51. INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
52. INSTALL DELINEATOR MARKER
53. STORE 50 FEET OF COMMUNICATIONS CABLE
54. INSTALL ISOLATION TRANSFORMER
55. INSTALL INDUSTRIAL ETHERNET SWITCH
56. INSTALL VIDEO ENCODER
56A. INSTALL VIDEO DECODER
57. MODIFY EXISTING ELECTRICAL SERVICE
58. INSTALL NEW ELECTRICAL SERVICE
58A. INSTALL EQUIPMENT CABINET DISCONNECT
59. INSTALL PIEZOELECTRIC QUARTZ SENSORS
60. INSTALL AUTOMATED LICENSE PLATE RECOGNITION SYSTEM
61. INSTALL AUTOMATED USDOT RECOGNITION SYSTEM
62. INSTALL FREEZE FRAME CCTV CAMERA ASSEMBLY
63. INSTALL STANDARD INDUCTIVE LOOP
64. INSTALL OVERHEIGHT DETECTOR ASSEMBLY WITH METAL POLE AND FOUNDATION
65. INSTALL STEEL POLE, MASTARM AND FOUNDATION

* CABLES SHALL BE PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS

CONSTRUCTION NOTE SYMBOLOGY KEY

- (X) INDICATES NUMBER OF CABLES, LOOPS, ETC.
- [XX] INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- <X INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- <XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (in)



Prepared in the Office of: [illegible]

CONSTRUCTION NOTES

DIVISION 03 NEW HANOVER CO. WILMINGTON

PLAN DATE: JULY 2010 REVIEWED BY: B. C. YOW

PREPARED BY: G. A. GREEN REVIEWED BY: T. G. PARKER

SCALE: N/A

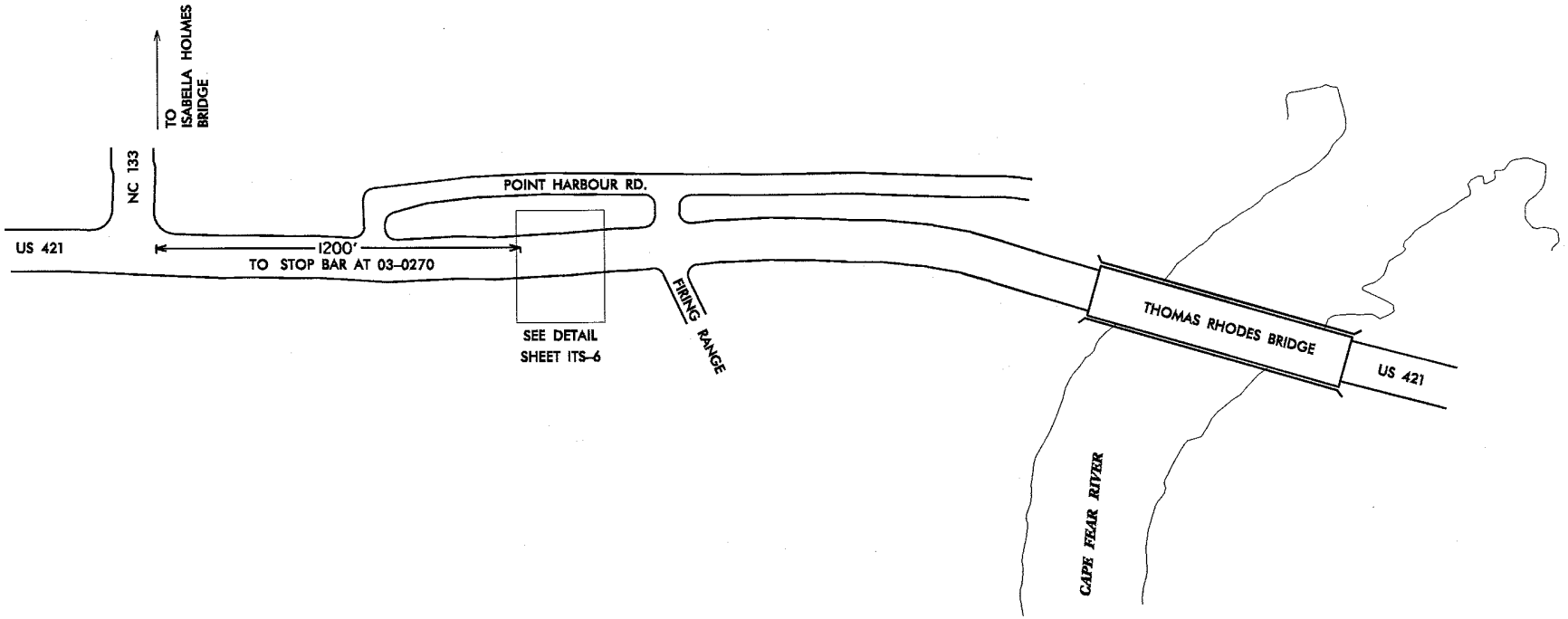
REVISIONS | INIT. | DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 023919 ENGINEER GREGORY A. GREEN

SIGNATURE: Gregory A Wells DATE: 7/15/10

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
33878.2.41	ITS-5



Prepared in the Office of:

PROJECT AREA OVERVIEW

DIVISION 03 NEW HANOVER CO. WILMINGTON

PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YOH
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. B. PARKER

REVISIONS	INIT.	DATE

SCALE: 0 N/A

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023919 ENGINEER GREGORY A. MILLER

SIGNATURE Gregory Miller DATE 7/15/10

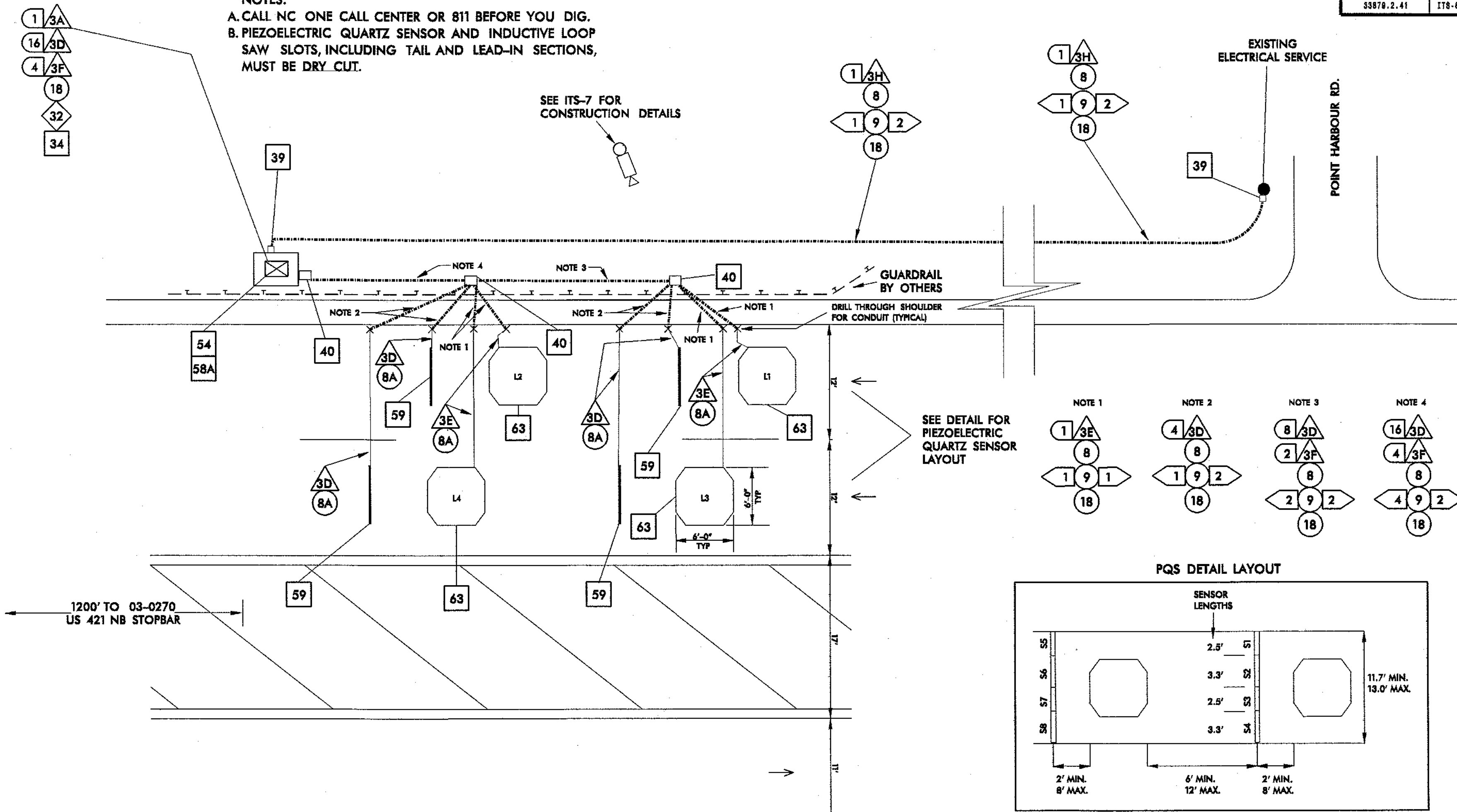
CADD File/Cell:

PROJECT REFERENCE NO.	SHEET NO.
33878.2.41	ITS-8

NOTES:

A. CALL NC ONE CALL CENTER OR 811 BEFORE YOU DIG.

B. PIEZOELECTRIC QUARTZ SENSOR AND INDUCTIVE LOOP SAW SLOTS, INCLUDING TAIL AND LEAD-IN SECTIONS, MUST BE DRY CUT.



SENSOR SPACING SHOWN IS TYPICAL REQUIREMENT. ACTUAL SENSOR SPACING MAY BE ALTERED TO SUIT SITE CONDITIONS UPON APPROVAL BY THE ENGINEER.

VIRTUAL WEIGH STATION DETAIL

DIVISION 03 NEW HANOVER CO. WILMINGTON

PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YOW
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. G. PARKER

SCALE: N/A

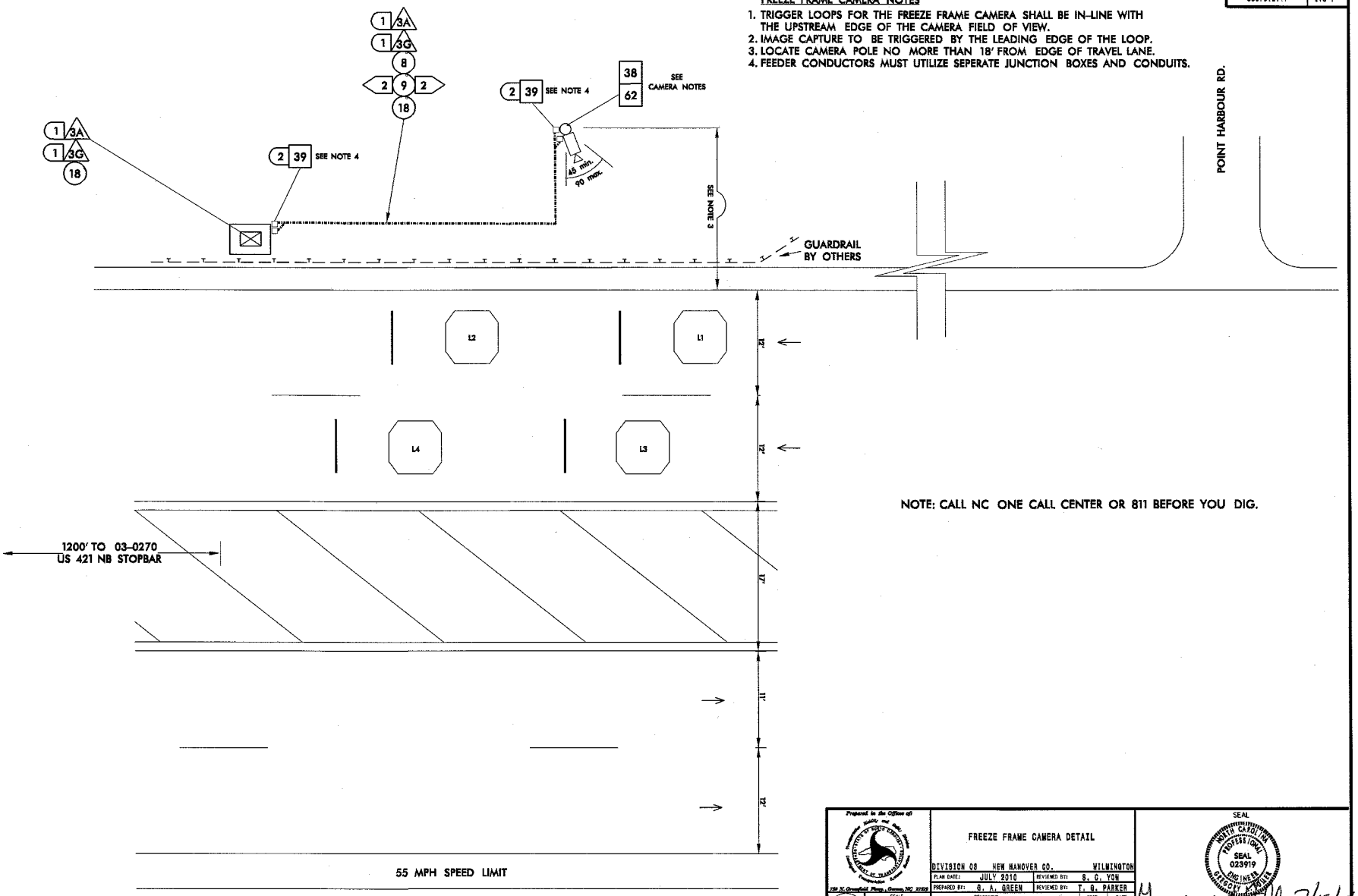
SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023919 GREGORY A. FULLER

7/15/14

PROJECT REFERENCE NO.	SHEET NO.
38879.2.41	ITS-7

FREEZE FRAME CAMERA NOTES

1. TRIGGER LOOPS FOR THE FREEZE FRAME CAMERA SHALL BE IN-LINE WITH THE UPSTREAM EDGE OF THE CAMERA FIELD OF VIEW.
2. IMAGE CAPTURE TO BE TRIGGERED BY THE LEADING EDGE OF THE LOOP.
3. LOCATE CAMERA POLE NO MORE THAN 18' FROM EDGE OF TRAVEL LANE.
4. FEEDER CONDUCTORS MUST UTILIZE SEPERATE JUNCTION BOXES AND CONDUITS.



NOTE: CALL NC ONE CALL CENTER OR 811 BEFORE YOU DIG.

Prepared in the Offices of

FREEZE FRAME CAMERA DETAIL

DIVISION 08	NEW HANOVER CO.		WILMINGTON
PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YON
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. G. PARKER

REVISIONS	INIT.	DATE

SCALE: 0 N/A

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023919 ENGINEER GREGORY A. GREEN

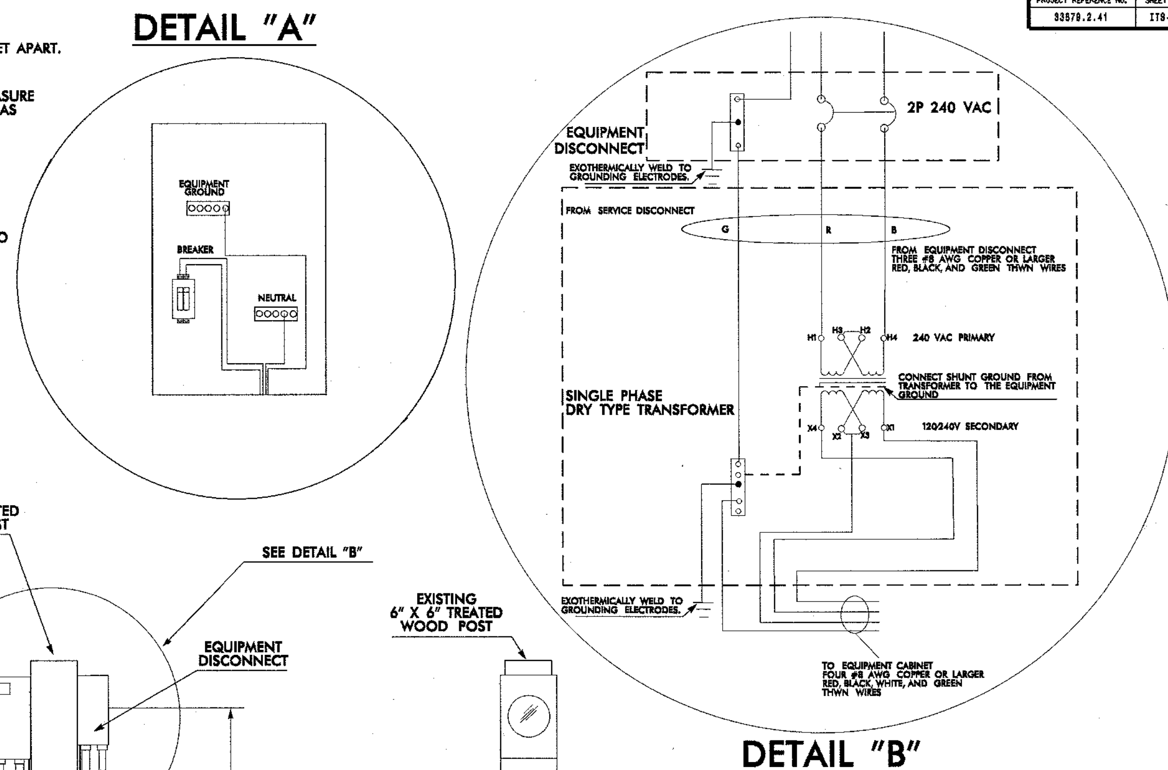
Gregory A. Green 7/15/10

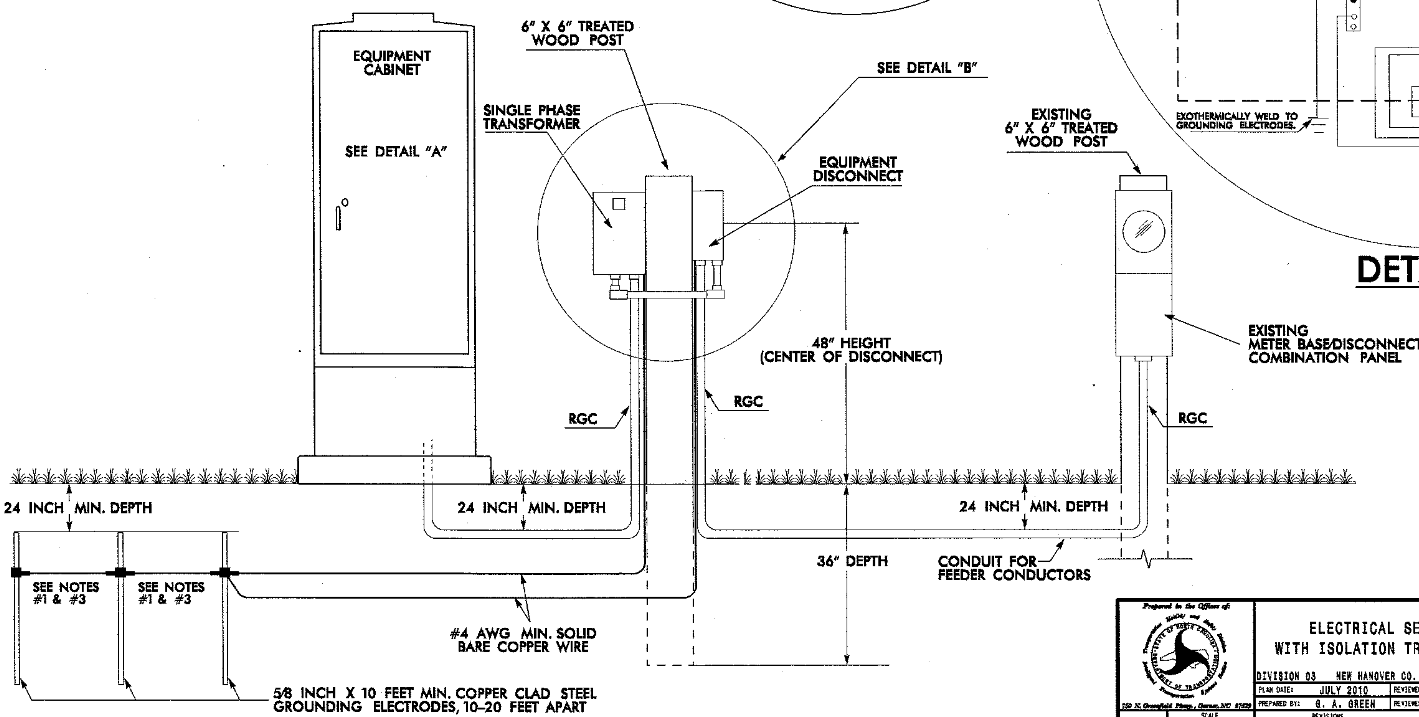
SIGNATURE DATE

CADD FILENAME

NOTES

1. INSTALL A MINIMUM OF THREE GROUND RODS SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT GROUND AND AC NEUTRAL IN THE EQUIPMENT CABINET.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS (RGC) ENTERING THE CABINET TO EQUIPMENT GROUND.
7. ALL ABOVE GROUND CONDUITS MUST BE RIGID GALVANIZED STEEL. PVC CONDUITS ARE ALLOWED FOR UNDERGROUND INSTALLATIONS.
8. ENSURE EQUIPMENT GROUND BUSS IS ELECTRICALLY BONDED TO EQUIPMENT CABINET.





Prepared in the Offices of: ... 750 N. Greenfield Pkwy., Garner, NC 27529

ELECTRICAL SERVICE
WITH ISOLATION TRANSFORMER

DIVISION 03	NEW HANOVER CO.		WILMINGTON
PLAN DATE:	JULY 2010	REVIEWED BY:	S. C. YOW
PREPARED BY:	G. A. GREEN	REVIEWED BY:	T. G. PARKER

REVISIONS | INIT. | DATE

SCALE 0 N/A

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 023919 ENGINEER GREGORY A. FULLER

Gregory A. Fuller 7/15/10
SIGNATURE DATE

CADD Filename: